L5: Entry 11 of 13 File: USPT Mar 26, 2002

DOCUMENT-IDENTIFIER: US 6361985 B1
TITLE: Beta-1,3-galactosyltransferase homolog, ZNSSP6

Brief Summary Text (3):
Galactosyltransferases promote the transfer of an activated galactose residue in UDP-galactose to the monosaccharide N-acetylglucosamine. This transfer is a step in the biosynthesis of the carbohydrate portion of galactose-containing glycoproteins, such as oligosaccharides and glycolipids, in animal tissues. One subgroup of the galactosyltransferases is the beta-1,3-galactosyltransferases, which are characterized by the elongation of type I oligosaccharide chains. Additionally, the beta-1,3-galactosyltransferases are found on glycoproteins and glycolipids, are important precursors of blood group antigens, and are present in soluble oligosaccharides of human milk. Similar to other members of galactosytransferases, the beta-1,3-galactosyltransferases require a divalent cation (Mn.sup.2+) to function. The beta-1,3-galactosyltransferases seem to have restricted tissue distributions.

Brief Summary Text (30):
The term "affinity tag" is used herein to denote a polypeptide segment that can be attached to a second polypeptide to provide for purification of the second polypeptide or provide sites for attachment of the second polypeptide to a substrate. In principal, any peptide or protein for which an antibody or other specific binding agent is available can be used as an affinity tag. Affinity tags include a poly-histidine tract, protein A (Nilsson et al., EMBO J. 4:1075, 1985; Nilsson et al., Methods Enzymol. 198:3, 1991), glutathione S transferase (Smith and Johnson, Gene 67:31, 1988), Glu-Glu affinity tag (Grussenmeyer et al., Proc. Natl. Acad. Sci. USA 82:7952-4, 1985), substance P, Flag.TM. peptide (Hopp et al., Biotechnology 6:1204-1210, 1988), streptavidin binding peptide, maltose binding protein (Guan et al., Gene 67:21-30, 1987), cellulose binding protein, thioredoxin, ubiquitin, T7 polymerase, or other antigenic epitope or binding domain. See, in general, Ford et al., Protein Expression and Purification 2: 95-107, 1991. DNAs encoding affinity tags and other reagents are available from commercial suppliers (e.g., Pharmacia Biotech, Piscataway, N.J.; New England Biolabs, Beverly, Mass.; Eastman Kodak, New Haven, Conn.).

Brief Summary Text (54):
The present invention is based upon the discovery of a novel cDNA sequence (SEQ ID NO:1) and corresponding polypeptide (SEQ ID NO:2) having homology to a family of proteins, the beta-1,3-galactosyltransferases. The beta-1,3-galactosyltransferases are part of the galactosyltransferases, which in turn, belong in the category of glycosyltransferases. The beta-1,3-galactosyltransferase family includes HSY15014 (Kolbinger, F. et al., Journal of Biol. Chem. 273: 433-440, 1998), HSGALT3, HSGALT4, (Amado, M. et al., ibid), E07739 (Katsutoshi, S. et al., Japanese patent, JP 1994181759-A/1), and Cardiac and Pancreatic Peptide (Human Genome Sciences, Inc., WO 98/44112). Enzymes in this category are responsible for transferring galactose to carbohydrate chains during biosynthesis. It has been predicted that the beta-1,3-galactosyltransferase family members are in the alpha/beta barrel (TIM barrel) folding class of enzymes, similar to other glycosyltransferases such as the alpha-amylases and beta-glycanases (Yuan, Y. et al., Cell 88:9-11, 1997). Another member of the beta-1,3-galactosyltransferase family is the Drosophila melanogaster locus Brainiac (brn) (Goode, S. et al., Devel. Biol. 178:35-50, 1996), also known as "putative neurogenic secreted signaling protein" or NSSP. Brn is required for epithelial development (Goode, ibid). This activity may be due to possible cell interactions between the membrane bound glycosyltransferase and oligosaccharide substrates on adjacent cell surfaces (Shur, ibid). The beta-1,3-galactosyltransferases family members are also known as neurogenic secreted signal peptides. See, for example, Shur, B. D., ibid, and Amado, M. et al., ibid.

Brief Summary Text (118):
To direct the export of a znssp6 polypeptide from the host cell, the znssp6 DNA is linked to a second DNA segment encoding a secretory peptide, such as a t-PA secretory peptide or a znssp6 secretory peptide. To facilitate purification of the secreted znssp6 polypeptide, a C-terminal extension, such as a poly-histidine tag, substance P, Flag peptide (Hopp et al., Bio/Technology 6:1204-1210, 1988; available from Eastman Kodak Co., New Haven, Conn.) or another polypeptide or protein for which an antibody or other specific binding agent is available, can be fused to the znssp6 polypeptide.

Brief Summary Text (119):
Moreover, using methods described in the art, polypeptide fusions, or hybrid znssp6 proteins, are constructed using regions or domains of the inventive znssp6 in combination with those of other human galactosyltransferase family proteins (e.g. HSGALT3, HSGALT4, .beta.3 Gal-T2, and .beta.3Gal-T3, or human homologs to the human ortholog of Brainiac), or heterologous proteins (Sambrook et al., ibid., Altschul et al., ibid., Picard, Cur. Opin. Biology, 5:511-5, 1994, and references therein). These methods allow the determination of the biological importance of larger domains or regions in a polypeptide of interest. Such hybrids may alter reaction kinetics, binding, constrict or expand the anti-complementary molecule specificity, or alter tissue and cellular localization of a polypeptide, and can be applied to polypeptides of unknown structure.

Brief Summary Text (120):
Fusion proteins can be prepared by methods known to those skilled in the art by preparing each component of the fusion protein and chemically conjugating them. Alternatively, a polynucleotide encoding both components of the fusion protein in the proper reading frame can be generated using known techniques and expressed by the methods described herein. For example, part or all of a domain(s) conferring a biological function may be swapped between znssp6 of the present invention with the functionally equivalent domain(s) from another family member, such as the human species ortholog of Brainiac, or other galactosyltransferases, etc. Such domains include, but are not limited to, the hydrophobic region thought to be a putative secretory signal sequence or transmembrane domain (residues 26 to 49 of SEQ ID NO:2), them stem or linker domain (residues 50 to 113 of SEQ ID NO:2), and other conserved motifs such as the beta-1,3-galactosyltransferase homology region (residues 114 to 378 of SEQ ID NO:2), and significant domains or regions in this family. Such fusion proteins would be expected to have a biological functional profile that is the same or similar to polypeptides of the present invention or other known galactosyltransferase family proteins (e.g. HSGALT3, HSGALT4, and Brainiac), depending on the fusion constructed. Moreover, such fusion proteins may exhibit other properties as disclosed herein.

Other Reference Publication (2):
Zhou et al. Molecular cloning of a human UDP-galactose:GlcNAcbeta1,3GalNAc beta1,3 galactosyltransferase gene encoding an O-linked core3 elongation enzyme. Eur J of Biochemistry 263(2):571-576, Jul. 1999.*

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Search Results - Record(s) 1 through 13 of 13 returned.

1. Document ID: US 20020119517 A1

L5: Entry 1 of 13 File: PGPB Aug 29, 2002

PGPUB-DOCUMENT-NUMBER: 20020119517
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020119517 A1

TITLE: Leptin induced genes

PUBLICATION-DATE: August 29, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
White, David	Holbrook	MA	US	
Zhou, Jianghong	Chestnut Hill	MA	US	
Tartaglia, Louis A.	Newton	MA	US	

US-CL-CURRENT: 435/69.1; 435/320.1, 435/325, 530/350, 536/23.5

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

2. Document ID: US 20020115839 A1

L5: Entry 2 of 13 File: PGPB Aug 22, 2002

PGPUB-DOCUMENT-NUMBER: 20020115839
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020115839 A1

TITLE: 8797, a novel human galactosyltransferase and uses thereof

PUBLICATION-DATE: August 22, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Meyers, Rachel	Newton	MA	US	
MacBeth, Kyle	Boston	MA	US	
Tsai, Fong-Ying	Newton	MA	US	

US-CL-CURRENT: 536/23.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

3. Document ID: US 20020107376 A1

L5: Entry 3 of 13 File: PGPB Aug 8, 2002

PGPUB-DOCUMENT-NUMBER: 20020107376
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020107376 A1

TITLE: 26199, 33530, 33949, 47148, 50226, and 58764, novel human transferase family members and uses therefor

PUBLICATION-DATE: August 8, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Meyers, Rachel	Newton	MA	US	
MacBeth, Kyle	Boston	MA	US	

US-CL-CURRENT: 536/23.2; 435/193, 435/320.1, 435/325, 435/6, 435/69.1, 435/7.23

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

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4. Document ID: US 20020098564 A1

L5: Entry 4 of 13 File: PGPB Jul 25, 2002

PGPUB-DOCUMENT-NUMBER: 20020098564
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020098564 A1

TITLE: Human beta-1,3-galactosyltransferase

PUBLICATION-DATE: July 25, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Conklin, Darrell C.	Seattle	WA	US	
Yamamoto, Gayle	Seattle	WA	US	
Gao, Zeren	Redmond	WA	US	
Jaspers, Stephen R.	Edmonds	WA	US	

US-CL-CURRENT: 435/193; 435/320.1, 435/325, 435/69.1, 536/23.2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

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5. Document ID: US 20020082194 A1

L5: Entry 5 of 13 File: PGPB Jun 27, 2002

PGPUB-DOCUMENT-NUMBER: 20020082194
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020082194 A1

TITLE: Isolated human drug-metabolizing proteins, nucleic acid molecules encoding human drug-metabolizing proteins, and uses thereof

PUBLICATION-DATE: June 27, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Guegler, Karl	Menlo Park	CA	US	
Webster, Marion	San Francesco	CA	US	
Yan, Chunhua	Boyds	MD	US	
Di Francesco, Valentina	Rockville	MD	US	
Beasley, Ellen M.	Darnestown	MD	US	

US-CL-CURRENT: 514/2; 435/183, 435/325, 435/6, 435/69.1, 536/23.2, 800/8

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Image

_] 6. Document ID: US 20020052308 A1

L5: Entry 6 of 13 File: PGPB May 2, 2002

PGPUB-DOCUMENT-NUMBER: 20020052308
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020052308 A1

TITLE: Nucleic acids, proteins and antibodies

PUBLICATION-DATE: May 2, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Rosen, Craig A.	Laytonsville	MD	US	
Ruben, Steven M.	Olney	MD	US	

US-CL-CURRENT: 514/1; 435/183, 435/320.1, 435/325, 435/6, 435/69.1, 435/7.1, 530/350, 536/23.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Image

_] 7. Document ID: US 20020037850 A1

L5: Entry 7 of 13 File: PGPB Mar 28, 2002

PGPUB-DOCUMENT-NUMBER: 20020037850
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020037850 A1

TITLE: Novel polypeptides and nucleic acids encoding same

PUBLICATION-DATE: March 28, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Vernet, Corine A. M.	North Branford	CT	US	
Shimkets, Richard A.	West Haven	CT	US	
Rastelli, Luca	Guilford	CT	US	
Burgess, Catherine E.	Wethersfield	CT	US	
Taupier, Raymond J. JR.	East Haven	CT	US	

US-CL-CURRENT: 514/12; 435/183, 435/325, 435/69.1, 436/6, 536/23.2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

8. Document ID: US 20020019049 A1

L5: Entry 8 of 13 File: PGPB Feb 14, 2002

PGPUB-DOCUMENT-NUMBER: 20020019049
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020019049 A1

TITLE: Methods for enhancing the expression of a protein of interest by recombinant host cells

PUBLICATION-DATE: February 14, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Lok, Si	Seattle	WA	US	

US-CL-CURRENT: 435/455; 435/320.1, 435/91.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

9. Document ID: US 20010024808 A1

L5: Entry 9 of 13 File: PGPB Sep 27, 2001

PGPUB-DOCUMENT-NUMBER: 20010024808
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20010024808 A1

TITLE: Leptin induced genes

PUBLICATION-DATE: September 27, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
White, David	Holbrook	MA	US	
Zhou, Jianghong	Chestnut Hill	MA	US	
Tartaglia, Louis A.	Watertown	MA	US	

US-CL-CURRENT: 435/69.1; 435/325, 435/6, 435/7.2, 530/350, 536/23.5

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

10. Document ID: US 6416988 B1

L5: Entry 10 of 13 File: USPT Jul 9, 2002

US-PAT-NO: 6416988
DOCUMENT-IDENTIFIER: US 6416988 B1

TITLE: Beta-1,3-galactosyltransferase homologs

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

11. Document ID: US 6361985 B1

L5: Entry 11 of 13 File: USPT Mar 26, 2002

US-PAT-NO: 6361985
DOCUMENT-IDENTIFIER: US 6361985 B1

TITLE: Beta-1,3-galactosyltransferase homolog, ZNSSP6

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

12. Document ID: US 6077673 A

L5: Entry 12 of 13 File: USPT Jun 20, 2000

US-PAT-NO: 6077673
DOCUMENT-IDENTIFIER: US 6077673 A

TITLE: Mouse arrays and kits comprising the same

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

13. Document ID: US 6025194 A

L5: Entry 13 of 13 File: USPT Feb 15, 2000

US-PAT-NO: 6025194
DOCUMENT-IDENTIFIER: US 6025194 A

TITLE: Nucleic acid sequence of senescence asssociated gene

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

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Terms	Documents
L2 and (binding agent)	13

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L2 and (binding agent)	13

Database: US Patents Full-Text Database; US Pre-Grant Publication Full-Text Database; JPO Abstracts Database; EPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

Search: L5

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Search History

DATE: Monday, October 21, 2002 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ			
L5	L2 and (binding agent)	13	L5
L4	L2 and (1,3-N-acetylglucosaminyl transferase)	0	L4
L3	L2 and (1,3-N-acetylglucosaminyl transferase or beta 3 Gn-T5)	0	L3
L2	L1 same human	184	L2
L1	galactosyltransferase	462	L1

END OF SEARCH HISTORY

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(FILE 'HOME' ENTERED AT 08:42:06 ON 21 OCT 2002)

INDEX 'ADISALERTS, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI, BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DRUGB, DRUGLAUNCH, DRUGMONOG2, ...' ENTERED AT 08:42:22 ON 21 OCT 2002

SEA GALACTOSYLTRANSFERASE

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1	FILE ADISNEWS
166	FILE AGRICOLA
28	FILE ANABSTR
18	FILE AQUASCI
13	FILE BIOBUSINESS
4	FILE BIOCOMMERCE
2482	FILE BIOSIS
211	FILE BIOTECHABS
211	FILE BIOTECHDS
1042	FILE BIOTECHNO
441	FILE CABA
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3157	FILE CAPLUS
31	FILE CEABA-VTB
2	FILE CEN
6	FILE CIN
106	FILE CONFSCI
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40	FILE DDFU
660	FILE DGENE
57	FILE DRUGB
49	FILE DRUGU
20	FILE EMBAL
2099	FILE EMBASE
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47	FILE FEDRIP
4	FILE FROSTI
38	FILE FSTA
1702	FILE GENBANK
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327	FILE JICST-EPLUS
588	FILE LIFESCI
2712	FILE MEDLINE
5	FILE NIOSHTIC
3	FILE NTIS
1	FILE OCEAN
668	FILE PASCAL
2	FILE PHIN
19	FILE PROMT
2156	FILE SCISEARCH
633	FILE TOXCENTER
338	FILE USPATFULL
2	FILE USPAT2
2	FILE VETB

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                3   FILE VETU
               83   FILE [redacted]PIDS
               83   FILE [redacted]PINDEX
L1               QUE GALACTOSYLTRANSFERASE
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     FILE 'CAPLUS, BIOSIS, MEDLINE, SCISEARCH, EMBASE, BIOTECHNO' ENTERED AT
     08:45:08 ON 21 OCT 2002
L2          4762 S L1 AND HUMAN
L3            10 S L2 AND (1,3-N-ACETYLGLUCOSAMINYL TRANSFERASE) OR (BETA
3GN-T5
L4             5 DUP REM L3 (5 DUPLICATES REMOVED)
L5             0 S L2 AND (BIND? AGENT)
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=> d l4 ibib ab 1-5

L4 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 1
ACCESSION NUMBER: 2001:482456 CAPLUS
DOCUMENT NUMBER: 136:129751
TITLE: Molecular cloning and characterization of UDP-GlcNAc:lactosylceramide .beta.1,3-N-acetylglucosaminyltransferase (.**beta.3Gn-T5**), an essential enzyme for the expression of HNK-1 and Lewis X epitopes on glycolipids
AUTHOR(S): Togayachi, Akira; Akashima, Tomohiro; Ookubo, Reiko; Kudo, Takashi; Nishihara, Shoko; Iwasaki, Hiroko; Natsume, Ayumi; Mio, Hiroyuki; Inokuchi, Jin-Ichi; Irimura, Tatsuro; Sasaki, Katsutoshi; Narimatsu, Hisashi
CORPORATE SOURCE: Division of Cell Biology, Institute of Life Science, Soka University, Tokyo, 192-8577, Japan
SOURCE: Journal of Biological Chemistry (2001), 276(25), 22032-22040
CODEN: JBCHA3; ISSN: 0021-9258
PUBLISHER: American Society for Biochemistry and Molecular Biology
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A new member of the UDP-N-acetylglucosamine:.beta.-galactose .beta.1,3-N-acetylglucosaminyltransferase (.beta.3Gn-T) family having the .beta.3Gn-T motifs was cloned from rat and human cDNA libraries and named .**beta.3Gn-T5** based on its position in a phylogenetic tree. We concluded that .**beta.3Gn-T5** is the most feasible candidate for lactotriaosylceramide (Lc3Cer) synthase, an important enzyme which plays a key role in the synthesis of lacto- or neolacto-series carbohydrate chains on glycolipids. .**beta.3Gn-T5** exhibited strong activity to transfer GlcNAc to glycolipid substrates, such as lactosylceramide (LacCer) and neolactotetraosylceramide (nLc4Cer; paragloboside), resulting in the synthesis of Lc3Cer and neolactopentaosylceramide (nLc5Cer), resp. A marked decrease in LacCer and increase in nLc4Cer was detected in Namalwa cells stably expressing .**beta.3Gn-T5**. This indicated that .**beta.3Gn-T5** exerted activity to synthesize Lc3Cer and decrease LacCer, followed by conversion to nLc4Cer via endogenous galactosylation. The following four findings further supported that .**beta.3Gn-T5** is Lc3Cer synthase. The .**beta.3Gn-T5** transcript levels in various cells were consistent with the activity levels of Lc3Cer synthase in those cells. The .**beta.3Gn-T5** transcript was presented in various tissues and cultured cells. The .**beta.3Gn-T5** expression was up-regulated by stimulation with retinoic acid and down-regulated with 12-O-tetradecanoylphorbol-13-acetate in HL-60 cells. The changes in .**beta.3Gn-T5** transcript levels during the rat brain development were detd. Points 2, 3, and 4 were consistent with the Lc3Cer synthase activity reported previously.
REFERENCE COUNT: 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 2
ACCESSION NUMBER: 2001:867515 CAPLUS
DOCUMENT NUMBER: 136:132636
TITLE: A novel member of the glycosyltransferase family, .beta.3Gn-T2, highly downregulated in invasive **human** bladder transitional cell carcinomas
AUTHOR(S): Gromova, Irina; Gromov, Pavel; Celis, Julio E.
CORPORATE SOURCE: Institute of Cancer Biology, Danish Cancer Society, Copenhagen, 2100, Den.
SOURCE: Molecular Carcinogenesis (2001), 32(2), 61-72
CODEN: MOCAE8; ISSN: 0899-1987
PUBLISHER: Wiley-Liss, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Differential display reverse transcription (DDRT)-polymerase chain reaction (PCR) was used to compare the transcriptomes of invasive and noninvasive fresh **human** bladder transitional cell carcinomas. A differentially expressed novel gene sharing structural similarity with the **human** .beta.3-**galactosyltransferase** family, .beta.-**1,3-N-acetylglucosaminyl-transferase**-T2 (.beta.3Gn-T2), was identified. The full-length .beta.3Gn-T2 cDNA, contg. a complete open reading frame of 1193 bp, was cloned and sequenced. .beta.3Gn-T2 exhibited 29-41% homol. to the multigene .beta.3-galactosyl-transferase family. Expression of the full-length .beta.3Gn-T2 cDNA in an in vitro coupled transcription/translation assay yielded a primary translation product with an apparent Mr of 46 kDa, which is in agreement with the predicted 397-amino-acid protein encoded by .beta.3Gn-T2. Multiple peptide alignment showed several sequence motifs corresponding to putative catalytic domains that are conserved throughout all members of the .beta.3-**galactosyltransferase** family, namely, a type II transmembrane domain, a conserved D.times.D motif, an N-glycosylation site, and five conserved cysteines. By RT-PCR strong downregulation of .beta.3Gn-T2 expression was noted in invasive **human** bladder transitional cell carcinomas (16 fresh biopsy samples: grade III, T2-T4) compared with their noninvasive counterparts (15 fresh biopsies: grade II, Ta), suggesting that .beta.3Gn-T2 may be involved in cancer progression.
REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 3 OF 5 SCISEARCH COPYRIGHT 2002 ISI (R)
ACCESSION NUMBER: 1999:284076 SCISEARCH
THE GENUINE ARTICLE: 183VR
TITLE: Enzymatic synthesis of natural and C-13 enriched linear poly-N-acetyllactosamines as ligands for galectin-1
AUTHOR: DiVirgilio S; Glushka J; Moremen K; Pierce M (Reprint)
CORPORATE SOURCE: UNIV GEORGIA, DEPT BIOCHEM & MOL BIOL, ATHENS, GA 30602 (Reprint); UNIV GEORGIA, DEPT BIOCHEM & MOL BIOL, ATHENS, GA 30602; UNIV GEORGIA, COMPLEX CARBOHYDRATE RES CTR, ATHENS, GA 30602
COUNTRY OF AUTHOR: USA
SOURCE: GLYCOBIOLOGY, (APR 1999) Vol. 9, No. 4, pp. 353-364. Publisher: OXFORD UNIV PRESS, GREAT CLARENDON ST, OXFORD OX2 6DP, ENGLAND.
ISSN: 0959-6658.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 57
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB As part of a study of protein-carbohydrate interactions, linear N-acetyl-polyllact[redacted]amines [Gal beta 1,4GlcNAc beta [redacted],3](n) were synthesized at the [redacted]0-100 mu mol scale using enzyma[redacted]c methods. The methods described also provided specifically [1-C-13]galactose-labeled tetra- and hexasaccharides ([1-C-13]Gal beta 1,4GlcNAc beta 1,3Gal beta 1,4Glc and Gal beta 1,4GlcNAc beta 1,3[1-C-13]Gal beta 1,4GlcNAc beta 1,3Gal beta 1,4Glc) suitable for NMR studies. Two series of oligosaccharides were produced, with either glucose or N-acetlyglucosamine at the reducing end. In both cases, large amounts of starting primer were available from **human** milk oligosaccharides (trisaccharide primer GlcNAc beta 1,3Gal beta 1,4Glc) or via transglycosylation from N-acetyllactosamine, Partially purified and immobilized glycosyltransferases, such as bovine milk beta 1,4 **galactosyltransferase** and **human** serum beta **1**, **3 N- acetylglucosaminyl-transferase**, were used for the synthesis. All the oligosaccharide products were characterized by H-1 and C-13 NMR spectroscopy and MALDI-TOF mass spectrometry, The target molecules were then used to study their interactions with recombinant galectin-1, and initial H-1 NMR spectroscopic results are presented to illustrate this approach. These results indicate that, for oligomers containing up to eight sugars, the principal interaction of the binding site of galectin-1 is with the terminal N-acetyllactosamine residues.

L4 ANSWER 4 OF 5 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 94218558 EMBASE
DOCUMENT NUMBER: 1994218558
TITLE: Two different glycosyltransferase defects that result in GalNAc.alpha.-O- peptide (Tn) expression.
AUTHOR: King M.-J.; Chan A.; Roe R.; Warren B.F.; Dell A.; Morris H.R.; Bartolo D.C.C.; Durdey P.; Corfield A.P.
CORPORATE SOURCE: Department of Medicine Laboratories, Bristol Royal Infirmary,Bristol BS2 8HW, United Kingdom
SOURCE: Glycobiology, (1994) 4/3 (267-279).
ISSN: 0959-6658 CODEN: GLYCE3
COUNTRY: United Kingdom
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 016 Cancer
026 Immunology, Serology and Transplantation
029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English
AB This study shows for the first time that different glycosyl-transferase defects in the biosynthesis of O-linked oligosaccharides give rise to the same GalNAc.alpha.-O-Ser/Thr determinant on Tn erythrocytes and colorectal carcinoma cells. The O-linked oligosaccharides isolated from the glycophorins of Tn erythrocytes contained predominantly .alpha.-N-acetylgalactosamine-O- Ser/Thr (Tn antigen) and sialyl-Tn. A marked reduction in normal sialylated oligosaccharides was also observed. Monoclonal antibody BRIC 111 raised against Tn erythrocytes reacted with both Tn erythrocytes and colorectal carcinoma tissues. Weak staining was detected in the supranuclear area and at the surface membranes in normal colorectal cells, but was absent from goblet cell vesicles. An increase in supranuclear staining over controls was found in tumour tissue and in the majority of resection margin specimens. The highest levels of staining were present in transitional mucosa, adjacent to the tumours where goblet vesicles were also positive. Glycosylation defects in the same patients were further studied by determination of the activity of glycosyltransferases in mucosal tissue from control and cancer patients. The reduction in or loss of .beta.**1-3 N-acetylglucosaminyl transferase** activity to GalNAc-peptide in asialo-ovine submaxillary gland glycoprotein was detected by direct assay and by isolation of the oligosaccharides from the

incubation products. No differences in N-acetylglucosaminyl-, galactosyl- or sialyl- transf[redacted]to Gal.beta.1-3GalNAc in antif[redacted]ze glycoprotein or in sialyl transferase to asialo-ovine submaxillary gland glycoprotein were detected. Our study shows that the GalNAc.alpha.-O-Ser/Thr determinant on Tn erythrocytes and in colorectal carcinoma results from different glycosyltransferase defects in separate biosynthetic pathways for haematopoietic and epithelial tissues.

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AB A .beta.1-3-N-Acetylglucosaminyltransferase was detected in **human** serum which transfers N-acetylglucosamine residues from UDP-GlcNAc to terminal Gal.beta.1-4Glc(NAc) structures in oligosaccharides, glycoproteins, glycolipids and proteoglycans. The product of the transferase reaction with lactose as acceptor was identified by methylation analysis and mass spectrometry as GlcNAc.beta.1-3Gal.beta.1-4Glc. The .beta.-linkage of the GlcNAc in the synthesized trisaccharide was confirmed by the action of the specific enzymes .beta.-hexosaminidase and .beta.-N-acetylglucosaminide .beta.1-4-**galactosyltransferase**. Kinetic parameters were determined for UDP-GlcNAc, lactose and N-acetyllactosamine. The enzyme requires Mn2+ ions for maximal activity and shows a pH optimum between 6 and 8. Using a wide variety of synthetic and natural oligosaccharides, the substrate specificity of the .beta.1-3N-acetylglucosaminyltransferase was investigated. The enzyme recognized specifically the free terminal structure Gal.beta.1-4Glc(NAc). The substrate specificity was equally stringent for glycoconjugates. Among the glycoproteins and glycolipids tested as acceptors, N-acetylglucosamine was incorporated only into those containing free terminal Gal.beta.1-4Glc(NAc) structures. When the terminal galactose residues were partially removed, the transfer of N-acetylglucosamine was strongly reduced.